

Requirements: Bike Shop Automation

Bob's Bicycles is a popular bike rental business in your hometown. Bob, the owner, has been in business for many decades and is finally passing the baton to his son Mike. Mike, who knows little about the bike rental business, is asking for your help in designing an automated system for the bike shop. You visit the shop to learn more about the bike rental business.

Bob has always run his bike shop the old fashioned way. All records are maintained with pen and paper. The bike shop maintains a (paper) card for each bike. Each (handwritten) paper card stores information about the corresponding bike such as the bike's number, make, model, type (racer, mountain bike, tandem, etc), gender (men's/women's), rental deposit, daily rental charge, renter information etc. When a bike is rented, its card is located and the renter's information is written on it. The renter will specify the rental duration and will pay the bike's deposit fee and the rental cost for the estimated rental duration. When a bike is returned, Harry (the mechanic) looks it over to determine if any damage has occurred. If there is no damage, the deposit is returned. Otherwise an assessed damage charge is taken from the deposit. When the bike is returned late, additional rental charges are applied at the time of return. At the present time, a handwritten receipt is given to the renter at the time of renting. Customers will sometimes rent more than one bike. In this case, a separate receipt is provided for each bike. Bob is a shrewd businessman who takes pride in knowing his bikes. When a customer wishes to know if a certain kind of bike is available, he knows which bikes are available that might suit the customer's needs. However, as the business has grown, he too is finding it difficult to keep track of many aspects of his business. Bob understands the importance of customer retention. He takes pride in knowing his customers and will often offer a discounted rate to a frequent customer. However, no written customer records are maintained at the present time. Finally, Bob's bike shop sometimes acquires novelty bikes. Recently, for instance, it acquired a few high wheeler bicycles. These and similar novelty items provide good publicity for the business and make excellent rentals.

Mike sees the value in automating this business. The planned new system will keep track of all bikes in the bike shop and their corresponding information. It will keep a record of customers and past rental transactions. The system will help locate an appropriate bike for a customer. So the system will know if each bike is in the shop, being repaired or out on rental. It will compute the cost of the rental and keep track of these transactions. The system will keep track of the bikes that are rented by each customer. When a bike is returned, it will automatically compute the total cost and if an extra amount is due. It will be able to cope with customers who rent more than one bike and when each rental bike is rented for a different duration. It will print a one receipt for a rental. It will print a consolidated receipt for customers who are renting more than one bike. Finally the system will be able to record extra details about specialty bikes.